Harbison-Walker Refractories Company
West end of Shirley Street
Mount Union
Huntingdon County
Pennsylvania

HAER No. PA-242

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Washington, D.C. 20013-7127

HAER PA. 31-MTUN. 1-

HISTORIC AMERICAN ENGINEERING RECORD

HARBISON-WALKER REFRACTORIES COMPANY

HAER No. PA-242

Location:	West end of West Shirley Street, Mount Union, Huntingdon County, Pennsylvania
Date of Construction:	1899
Builder:	W.H. Haws Company
Present Owner:	Harbison-Walker
Present Use:	abandoned
Significance:	The Mount Union plant was the first works in the United States constructed exclusively for the manufacture of silica brick. Harbison and Walker, of Pittsburgh, was one of the largest refractory manufacturers in the world.
Project Information:	In February 1987, the Historic American Engineering Record (HAER) and the Historic American Buildings Survey (HABS) began a multi-year historical and architectural documentation project in southwestern Pennsylvania. Carried out in conjunction with America's Industrial Heritage Project (AIHP), HAER undertook a comprehensive inventory of Blair and Cambria counties as the first step in identifying the region's surviving historic engineering works and industrial resources. The results of this project have been published in Huntingdon County, Pennsylvania: An Inventory of Historic Engineering and Industrial Sites, (1991), by Nancy Shedd, Sarah Heald, editor and published by HABS/HAER for the National Park Service.
Compiler:	Nancy Shedd and Ken Heineman, Historians Gray Fitzsimons and Kenneth Rose, Editors

History:

DESCRIPTION: This large manufacturing site at the west end of Mount Union includes two complete silica-brick molding and drying works, known as the No. 1 and No. 2 works; two separate groups of thirteen and sixteen beehive kilns witb tall square stacks; two small rectangular kilns for special orders; associated storage and shipping sheds arranged on the periphery of the works; one five-story pattern-making and storage building; a series of crushing and screening facilities that begin at the ganister quarry on Jack's Mountain adjacent to the plant and extend into the manufacturing site proper ending in a seven- or eight-story screening building, clad with corrugated metal, which dominates the site; the site also. contains conveyors that connect the crushing and screening operations with the storage silos and the mixing and molding areas; nearby is a dust or mortar mill complex, carpenter shop, mule barn, old and new office buildings, and associated quarry sites on the north side of the Juniata River, with the remains of dinky railroad levels, a stone engine-servicing and repair shop on top of the mountain, and the "1,000 steps" of ganister rock in the south face of Jack's Mountain in the Narrows near Mount Union, which workers used to reach the quarries.

HISTORY: The W.H. Haws Company, a Johnstown refractories manufacturer, began constructing a plant at Mount Union in 1899, and in 1900 sold the entire property to Harbison and Walker, of Pittsburgh, one of the largest refractory manufacturers in the world. The Mount Union plant was the first works in the United States constructed exclusively for the manufacture of silica brick. Within a few years, Harbison-Walker developed two adjacent plants on the site, known as the No. 1 and No. 2 works, which could operate independently if desired. Some modification of the No. 1 plant occurred during construction of No. 2, including the replacement of hot floors with tunnel dryers. Another subsequent modification saw the original arch-top rectangular kilns, which appear in early photographs of the No. 1 works, superseded by beehive kilns. By 1910, the entire plant employed more than 600 men and had the capacity to produce 150,000 bricks per day. In a 1917 advertisement, Harbison-Walker claimed to be the "largest manufacturer of refractory materials in the world," and called its Mount Union operation "the largest silica-brick plant in the world."

Both the PRR and EBT railroads served the plant. The EBT provided coal to fire the kilns and the steam boilers, which powered the crushing pans, and the PRR offered direct shipping to customers.

As the first refractories manufacturers to recognize the Mount Union area's abundance of ganister, Harbison-Walker acquired the most convenient sources of supply. Naturally exposed rock floes on the north side of Jack's Narrows supplied quantities of ganister, necessitating construction of a dinky tramway to bring ore cars across the Juniata River and the PRR main line. In the late 1940s mining operations were relocated to the mountainside directly above the plant, and the crushing and washing operations were placed at intervals on the slope. This new arrangement necessitated razing about 100 company-built houses, located soutb and west of the plant. To shelter the displaced families, Huntingdon County's housing authority built its first federally supported project on the eastern edge of Mount Union.

Frank Pollicino, an employee in the Harbison-Walker quarry in the 1970s, questioned John Shaffer, superintendent of the mine, about the steps in Jack's Mountain. Shaffer reported that he had his quarry workers build the steps in 1936 to provide better access to their work place. The project took place after the 1936 flood had destroyed the dinky bridge, and Shaffer may have been looking for work to occupy his men until the damage was repaired and quarrying could resume.

Early in its history, Harbison-Walker's Mount Union plant specialized in the production of "silica shapes," the myriad shapes and sizes of silica brick used in constructing coke ovens. According to Robert Wagner, formerly in charge of coke-oven production for Harbison-Walker, the plant in Mount Union and a General Refractories plant in Claysburg, Blair County, were the only operations in the nation to manufacture silica shapes exclusively. When the Mount Union plant closed in 1985, former customers became alarmed at their inability to purchase replacement shapes for coke ovens still in use. In response, the retired plant manager and three former employees assembled the varied molds required for coke ovens and shipped them to a plant in Utah where replacement brick can be manufactured. The remaining molds were then sold for scrap in April 1989.

Harbison-Walker's dominance in the refractories industry depended in part on the impact presses it patented and made at Mount Union. When Wagner began work at the plant in 1942, hand-molding accounted for 90 percent of production and was considered essential to the standards of quality demanded in silica shape manufacture. Successful impact presses increased production and made a better product because the machine-pressed brick was more dense and hence better able to sustain the high temperatures needed in coke ovens. By the mid 1960s the plant's coke-oven brick manufacture was about half hand molded and half machine pressed; by the late 1970s, about 95 percent of these refractory coke-oven shapes were machine pressed. The company still regards the press design as a valuable industrial secret, and has destroyed the Mount Union presses since closing the plant.

Oil replaced coal as fuel for the plant in the early 1950s, and natural gas replaced oil in the 1970s. The advantage offered by the more precise temperature control these fuels allowed was offset during the 1970s by the disadvantage of increasing cost. Like many turn-of-the-century industries, refractories manufacture found itself engaged in a losing battle with the rising price of fuel, labor, and stricter environmental controls; at the same time considerable technological change in the steel and coke industries required refractories to adapt to meet their changing requirements. Harbison-Walker laid off employees in large numbers during the 1970s, calling them back when occasional large orders came in. In 1985, the plant shut down permanently. The property has been sold and the kilns are being demolished.

Sources:

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This report is an addendum to a 4 page report previously transmitted to the Library of Congress.

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Project Information:

Additional documentation and information on the Harbison-Walker Refractories Company brickyard in Mt. Union, Pa. was compiled in a project staffed by the Historic American Buildings Survey (HABS) and designed to document the company towns of the refractories industry in the AIHP region of Pennsylvania. Additional photographs of Harbison-Walker's Mt. Union brickyard were taken by David Ames of the Center for Historic Architecture and Engineering, University of Delaware. These photographs are included in this addendum. They document the brickyard after it had been partially demolished.

The results of the study of refractory brickyards and towns was published in 1993: Kim E. Wallace, Brickyard Towns: A History of Refractories Industry Communities in South-Central Pennsylvania (Washington, D.C.: America's Industrial Heritage Project and Historic American Buildings Survey/Historic American Engineering Record, National Park Service).

The contents of this publication were transmitted to the Library of Congress in report form. See additional information on the refractories industry (HABS No. PA-5973), the town of Mt. Union and its other two brickyards (HABS No. PA-5974), and other refractories industry brickyards and towns: Claysburg, Blair County (HABS No. PA-5970), Sproul, Blair County (HABS No. PA-5971), Blandburg, Cambria County (HABS No. PA-5972), Robinson, Indiana County (HABS No. PA-5975), Kistler, Mifflin County (HABS No. PA-5976), Bolivar, Westmoreland County (HABS No. PA-5977), and Salina, Westmoreland County (HABS No. PA-5978). Research notes, field photos and copies of historic photos collected during the project were transmitted to the AIHP Collection, Special Collections, Stapleton Library, Indiana University of Pennsylvania, Indiana, PA 15705.